FORYST, S.

Steel pickling in acid solutions. I. Forystʼ (*Prace Inst. Mineral. Hutn.*, 1955, 7, 152—156).—The main drawbacks of acid pickling of steel are loss of material and diffusion of hydrogen into steel causing brittleness and sometimes blisters and discoloration. Addition to the pickling bath of I.H-13 (an anthracene fraction [illegible] with 66° Bé H_2SO_4 at 25°), or Tardiol D (dibenzyl sulphonate), Tardiol F (1 part of Tardiol D, 1 part Mazonit (a proprietary surface active agent), 8 parts of anhydrous sodium sulphate or 8 parts of sodium chloride), prevents the harmful effects of acids. The mechanism of formation of brittleness and problems encountered in pickling of silicon steel are also discussed. S. KRÓL.

Metal

LFH

FORYST, II.

Distr: 4E2c 27

Influence of the chemical composition of deoxidizer iron-manganese-silicon-aluminum on the quantity and chemical composition of nonmetallic inclusions in steel. L. Enyvl, W. A. Meszlitzwill, et T. [illegible] (Inst. Ferrous Metallurgy, Gliwice, Poland). *Prace Instytutu Hutniczego* 9, 15-26 (1957)(English summary).—It was found that with the increase of Mn content in the deoxidizing alloy the quantity of nonmetallic inclusions in steel is rapidly decreased. F. explains the advantageous effect of Mn on the physicochem. properties of inclusions. It was also found that the addn. of Al causes the following changes: (1) SiO_2 inclusions are reduced by half, (2) Al_2O_3 is increased, (3) the amt. of FeO is slightly increased, and (4) the total amt. of nonmetallic inclusions increases or remains, at least, on the same level. The latter fact confirms the assumption that inclusions with a high content of Al_2O_3 have less ability to flow out from the steel.

F. J. Hendel

FORYST, J

K3

Comparison of two methods of a preliminary isolation of inclusions of oxides of low-carbon steels by electrolysis. [illegible] J. Forysť, J. Orzechowska, and W. [illegible] (Inst. Met., Gliwice, Poland). *Prace Inst. Mineralurgii Hutnictwa* V, 161–5(1957).—The authors compared the method of Klinger and Koch with the method by Bittner as modified by Łukasiewicz-Duwanowa, Lewa, and Szapiro and found that both methods when applied to nonalloyed steel are in fair agreement. The last method is an improved method of Uhrig and Hendricks. F. J. Hendel

1/1

FORYST, J.

TECHNOLOGY

PERIODICAL: HUTNIK, Vol. 25, no. 7/8, July/Aug. 1958.

FORYST, J. Research on nonmetallic inclusions in steel. p. 257.

Monthly List of East European (EEAI) LC Vol. 8, No.4 April, 1959, Unclass.

FORYST, J.

Distr: 4E2c

Carbides in annealed and quenched high-speed steels. T. Malkiewicz, Z. Bojarski, and J. Foryst. *Prace Inst. Hutniczych* II, 207-8(1950).—Carbides occurring in annealed and quenched high-speed steels (I and II) contg.: I, C 0.77, Mn 0.42, Si 0.21, P 0.027, B 0.020, Cr 4.00, W 18.79, V 1.55, Mo 0.20, and II, C 0.81, Mn 0.13, Si 0.14, P 0.013, S 0.014, Cr 4.54, W 8.52, V 2.20, and Mo 0.16% were examd. by metallographic methods, hardness measurements, and chem. and x-ray analysis of residue extd. by electrolytic methods. The specimens, 10 mm. in diam. and 40 mm. in length, were 1st heated to 800°, then austenitized at 900, 1000, 1100, or 1200° for 1, 5, 10, or 20 min., followed by oil quenching. The content of alloying elements in the matrix of both steels studied was the same for the as-annealed or for the as-quenched condition. The differences involved the phase compn. of carbides and the amt. present. Steel I when annealed contained the following types of carbides: M_3C, $M_{23}C_6$; the former being present when quenching from 1300° was applied. In steel II in as-annealed condition carbides of the type M_6C, M_7C_3, and MC were found, whereas after quenching from 1200° M_3C and MC could be observed. The basis phase constituent of the carbides present in steels studied appeared to be the M_3C carbide; however, its chem. compn. differed in both steels; the M_3C carbide present in steel I contained a higher amt. of W. During the austenizing annealing the most readily dissolved were $M_{23}C_6$ and M_7C_3, the process being completed below 1100°. A marked dissoln. of W and V in the steel matrix started at 1200°.

W. Bogusławczyk

FORYST, Juliusz, dcc. dr; ORE^KI, Kazimierz, mgr inz.; ORZECHOWSKA, J., mgr inz.; ŻELAZKIEWICZ, Jerzy

Testing physicochemical properties of inclusions originating during deoxidizing steel by Fe-Si and Al deoxidizers. Biul inf inst metal żel no.1:12-15 '64.

1. Department of Physical Chemistry of Steels of the Institute of Iron Metallurgy, Gliwice.

FORYST, YU.T.

PHASE I BOOK EXPLOITATION SOV/4558
SOV/16-8-5

Akademiya nauk SSSR. Institut metallurgii

Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya (Physicochemical Research Methods in Metallurgy and Metal Science) Moscow, Izd-vo AN SSSR, 1960. 251 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 2,800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova.

Resp. Ed.: I.P. Bardin, Academician (Deceased); Ed. of Publishing House: V.A. Klimov; Tech. Ed.: T.P. Polenova.

PURPOSE: This collection of articles is intended for metallurgists and metal researchers.

COVERAGE: The collection contains articles on metallurgy, metal science, and physicochemical research methods. Separate articles discuss the structure and properties of some metals and alloys. The effect of cold treatment and inclusions on the properties of alloys are analysed, and instruments and

ADAMASZEK, Kazimierz; FORYTARZ, Bronislaw; BRAUN, Kazimierz

Pretended-twist spirals, a new device to make pretended-twist in the drawing field of spinning frames. Przegl wlokien 16 no.2:96-98 F '62.

1. Bielska Fabryka Maszyn Wlokienniczych, Bielsko.

FORYTEK, Lumir

Increasing the efficiency of water blasting machines. Slevarenstvi 11 no.3:118-120 Mr '63.

1. Zavody V.I. Lenina, vyzkum slevarenskych stroju, Brno.

FOS, F. ;MIGLEVSKI, V.

Nomograms and their use in the textile industry. p. 415.
(Tekstil, Vol. 6, No. 5, May 1957, Zagreb, Yugoslavia)

SO: Monthly List of East European Accessions (EEAL) Lc. Vol. 6, No. 8, Aug 1957. Uncl.

FOSCA, V.

3

1583. Fosca, V., and Alexandrescu, A., Elastic deflection of beams with linear increase of depth (in Rumanian), *Industr. constr. Mater. constr.* 7, 6, 351–362, 1956.

Beams having linear one-direction and symmetrical slopes are theoretically investigated. Simplified formulas similar to those with constant moment of inertia are derived and coefficients introduced depending on characteristic variables, such as maximum and minimum depth and moments of inertia, types of the cross section and spans. Values of these coefficients for typical cross sections are tabulated and presented in diagrams. References are made to other methods and publications by Filonenko-Borodici, G. G. Karlsen, P. R. Voinea, Krilov. J. J. Polivka, USA

FOSEN.BAUEROVA, E.

SURNAME, Given Names

2

Country: [illegible]ia

Acad [illegible]

Affiliation: [illegible] Diseases Department (Infekcni oddeleni) Chief Dr V. ZIMAK; and [illegible]atomical Department (Patologickoanatomicke oddeleni) Chief [illegible] M. SCHOEPPENBAUM; Okres Institute for People's Health (OUNZ), [illegible]

Source: Prague, Prakticky Lekar, Vol 41, No 15-16, Aug 21, 1961; pp 707-[illegible]

Data: "Unusual Medicinal Poisoning with Triflocid Spofa"

ZIMAK, V.; MD
FOSENBAUEROVA, E.; Graduate physician (prom. lekarka)
SCHOEPPENBAUM, M.; MD

ZIMAK, V.; FOSENBAUEROVA, E.; PEYCHL, L.

Post-vaccination encephalitis. Cas.lek.cesk 100 no.9:264-268 3 Mr '61.

1. Infekcni oddeleni OUNZ Teplice Lazne v Cechach, prednosta prim. MUDr. V. Zimak.

(SMALLPOX immunol) (ENCEPHALITIS etiol)

PROCHAZKA, Vladimir, inz.; FOSENBAUEROVA, Renata

Shape defects of porcelain flatware. Sklar a keramik 15 no.3: 84-86 Mr '65.

1. Research Worksite of the Karlovarsky porcelan National Enterprise, Brezova.

FOSHER, O. A.

"The Influence Exercised by Microelements on the Growth, Development, and the Decorative Properties of Blossoming Plants."

dissertation defended for the degree of Candidate of Biological Sciences at the Inst. for Botanics im V. L. Komarov.

Defense of Dissertation (Jan-Jul 1957)
Sect. of Biological Sciences
Vest. AN SSSR, 1957, v. 27, No. 12, pp. 115-117

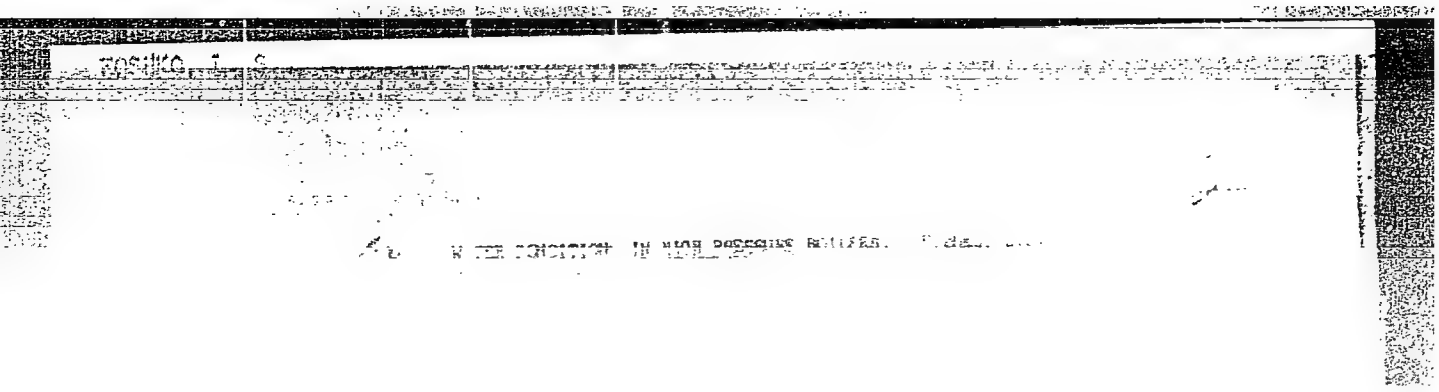
FOSHIN, Sergey Vladimirovich

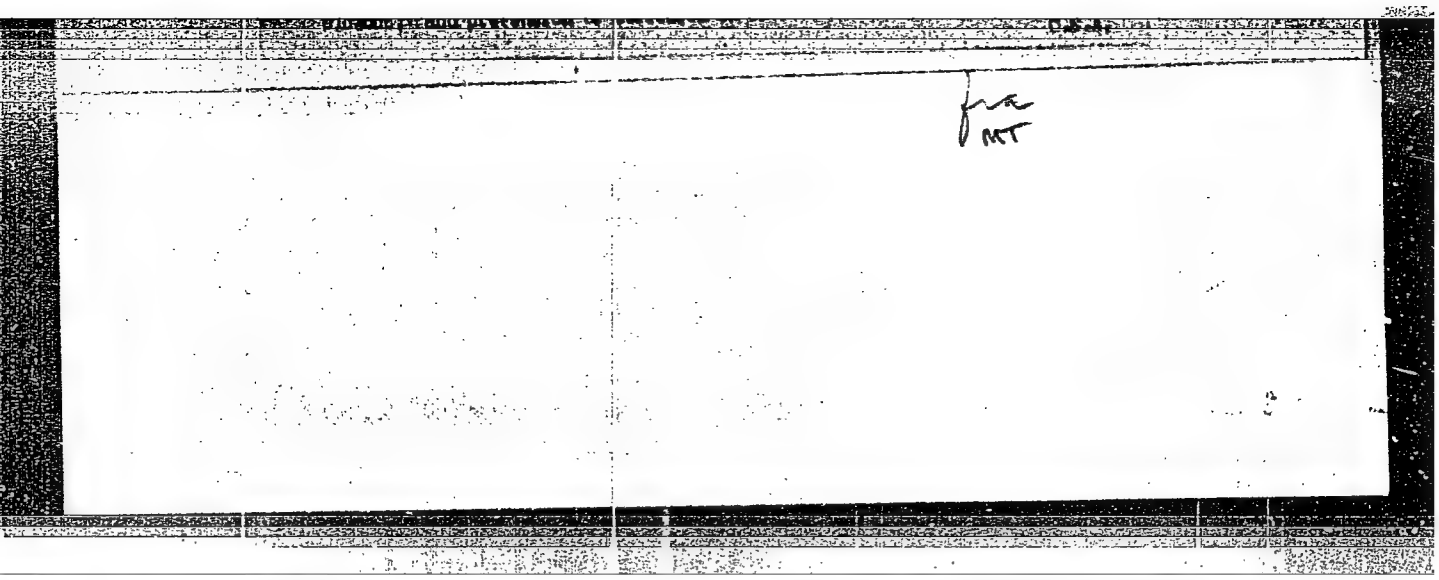
KURITSKIY, Yeliazar Isayevich; FOSHIN, Sergey Vladimirovich; ANTIK, I.V., redaktor; FRIDKIN, A.M., tekhnicheskiy redaktor.

[Safety measures in electric industry plants] Tekhnika bezopasnosti na zavodakh elektrotekhnicheskoy promyshlennosti. Moskva, Gos. energeticheskoe izd-vo, 1954. 336 p. (MIRA 8:4)
(Electric engineering--Safety measures)

GIRENKO, A.Kh., inzh.; FOSHKO, A.Ye., inzh.

Use of hydrazine in thermal electric power plants. Energ. i elektrotekh. prom. no.1:51-53 Ja-Mr'64. (MIRA 17:5)





FOSHKO, L. S.

Volumetric determination of sulfates. O. S. VARGINA AND L. S. FOSHKO. *Zhur. Analit. Khim.*, 27 [9] 51–57 (1972).—Add a 4- to 5-fold excess of titrated solution of $BaCl_2$ to HCl acidified solution containing sulfates. Then add alkaline mixture and Trilon B in an amount equivalent to the added solution of $BaCl_2$. Titrate excess Trilon B in the presence of one of the indicators used in the determination of water hardness with a solution of magnesium chloride. The analysis requires 7 to 8 min.

RZK

FOSHKO, L. S.

SOV/24-58-10-34/34

AUTHOR: Solomonov, M. S.

TITLE: Conference on Water Preparation in Thermal Power Stations (O vodopodgotovke na teplovykh elektrostantsiyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 159-160 (USSR)

ABSTRACT: During June 24-27, 1958, a conference took place on problems of water preparation in thermal power stations of high, intermediate, super-high and super-critical pressures. The conference was convened by the Commission on Steam of Very High Parameters of the Power Research Institute, Academy of Sciences USSR, imeni G. M. Krzhizhanovskiy, jointly with the Ministry of Power Stations USSR and the Moscow Scientific-Technical Society of the power industry. Over 400 representatives of scientific research establishments and of power stations participated. In the section on design, setting and operation of combined plant with magnesium desilisizing, the following papers were read:

1) "Experience in setting up and operation of water treatment plant with desilisizing by means of magnesium", V. F. Gvozdev (ORGRES),

2) "State and tasks in the development of plant for magnesium desilisizing of water in thermal power stations", V. M. Kvyatkovskiy (VTI),

3) "Schemes of automation of plant with desilisizing by means of magnesium", Ye. N. Krasotkin and V. M. Kvyatkovskiy (VTI),

4) "Problems of designing combined cation water treatment plants with magnesium desilisizing", A. A. Krupenitskiy (Khar'kovskoe otdeleniye TEP),

5) "Desilisizing of the water by means of filters", O. N. Shevyakin (VODGEO),

6) "Investigation of the process of magnesium desilisizing of water at elevated temperatures", L. M. Zhivilov (VTI),

7) "Magnesium-cathion method of desilisizing water", L. S. Foshko (Donbassenergo).

In the second section, "Experience in designing, setting and operation of chemical desalting plant", the following papers were read:

1) "Results of investigations and of industrial tests of chemical desalting plant and prospects of their application in thermal power stations with super-high and above-critical steam parameters", F. G. Prokhorov ([illegible]),

2) "New ionites for water preparation plant and prospects of their industrial manufacture", A. V. Pashkov (Institut plastmass im. Frunze),

3) "Problems of design of chemical desalting plant", V. S. Chernov (KhOTEP), I. M. Sokolov,

4) "Automation of pressure filters for water treatment in power stations", S. M. Gurvich ([illegible]).

In addition to these papers, [illegible] informative communications of various local representatives were presented. It transpired that during recent years methods of magnesium desilisizing and of thorough chemical desalting of water have gained extensive utilisation in Soviet power stations and these played an important role in the development of Soviet steam power. Successful mastering of magnesium desilisizing of water together with the application of stepwise evaporation in boilers, washing of steam and other measures enabled ensuring reliable and economic exploitation of high pressure (110 atm) boilers in combined heat and power stations which operate with a large loss of condensate. During recent years rational designs of [illegible] have been developed and also methods for dry dosing of caustic magnesite as well as mechanisation of its handling and an original method was described

Card 3/5

FOSHKO, L.S., inzh.; LOSEV, A.S., inzh.; PROKHOROV, F.G., kand.tekhn. nauk

Conditioning water for industrial boiler installations and evaporators by the addition of sodium-chloride ions. Teploenergetika 6 no.1:44-48 Ja '59. (MIRA 12:1)

1. Donbassenergo - Vsesoyuznyy teplotekhnicheskiy institut.
(Feed-water purification)

KVYATKOVSKIY, V.M., kand.tekhn.nauk; BAULINA, A.I., inzh.;
FOSHKOV, L.S., inzh.; LITVINOV, V.G., inzh.;
LOSEV, A.S., inzh.

Studying the hot liming process in water enriched with magnesium compounds. Teploenergetika 7 no.10:47-52 O '60. (MIRA 14:9)

1. Vsesoyuznyy teplotekhnicheskiy institut i Donbassenergo.
(Feed water purification)

FOSIKIO, A.

"Improvement of the dynamic characteristics in cross-filed welding dynamos."

p. 340 (Electrotehniski Vestnic. Electrotechnical Review) Vol. 25, no. 9/10 Sept./Oct. 1957. Lujblajna, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, nn. 4, April 1958

RAYEVSKIY, A.N.; FOSKARINO, T.G.

Climatological characteristics of diurnal maximums of precipitation in the southern part of the Ukraine. Trudy OGMI no.12:307-337 '58. (MIRA 12:7)

(Ukraine--Precipitation (Meteorology))

FOSMAN, I.A., mayor meditsinskoy sluzhby

Suitcase for the military physician. Voen.-med. zhur. no.8:87 Ag '61. (MIRA 15:2)

(MEDICAL SUPPLIES)

GOMEL'SKIY, A.Z.; FOSS, E.I., redaktor; LIBERMAN, S.S., redaktor; ANDREYEV, S.P., tekhnicheskiy redaktor

[Workers on the apparatus used in the coke by-product industry] Apparatchiki koksokhimicheskikh proizvodstv. 2-e izd. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 384 p. (MLRA 7:10)
(Coal tar products)

GRUZMAN, Lyubov' Davydovna; EDEL'MAN, Ita Iosifovna; FOSS, E.I., otvetstvennyy redaktor; SINYAVSKAYA, Ye.K., redaktor izdatel'stva; LIBERMAN, S.S., redaktor izdatel'stva; ANDREYEV, S.P., tekhnicheskiy redaktor

[Laboratory control of the by-product coke industry] Laboratornyi kontrol' koksokhimicheskogo proizvodstva. Izd. 4-oe, perer. i dop. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 635 p. (MLRA 10:10)
(Coke industry)

KOLYANDR, Lev Yakovlevich; FOSS, E.I., otv.red.; LIBERMAN, S.S., red. izd-va; ANDREYEV, S.P., tekhn.red.

[Refining of crude benzene] Pererabotka syrogo benzola. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 319 p. (MIRA 13:9)
(Benzene)

PETRENKO, Dmitriy Sergeyevich; FOSS, E.I., otv. red.; LIBERMAN, S.S., red. izd-va; ANDREYEV, S.P., tekhn. red.

[Production of pyridine bases in the by-product coke industry] Proizvodstvo piridinovykh osnovanii na koksokhimicheskikh zavodakh. Khar'kov, Metallurgizdat, 1961. 175 p. (MIRA 15:12)
(Pyridine bases) (Coke industry--By-products)

LITVINENKO, Mikhail Semenovich;NOSALEVICH, Ivan Mikhaylovich; FOSS, E.I., otv. red.; LIBERMAN, S.S., red. izd-va; ANDREYEV, S.P., tekhn. red.

[Coke-plant chemicals for the production of polymerials] Khimicheskie produkty koksovaniia dlia proizvodstva polimernykh materialov. Khar'kov, Metallurgizdat, 1962. 428 p. (MIRA 15:4)

(Coke industry--By-products) (Polymers)

FOSS, G.V.

Prospects for the development of gold prospecting. Sov. geol. 2 no.6:136-138 Je '59. (MIRA 12:12)

1.Ministerstvo geologii i okhrany nedr SSSR.
(Gold ores) (Prospecting)

FOSS, G.V.

Unused reserves. Razved. i okh. nedr 27 no.4:24-26 Ap '61.
(MIRA 14:5)

1. Ministerstvo geologii i okhrany nedr SSSR.
(Gold ores)

FOSS, Gleb Vasil'yevich; POTAPOV, V.S., red. izd-va;
IYERUSALIMSKAYA, Ye., tekhn.red.

[Gold; types of deposits, history of mining, resources]
Zoloto; tipy mestorozhdenii, istoriia dobychi, syr'evye
bazy. Moskva, Gosgeoltekhizdat, 1963. 172 p.
(MIRA 16:6)

(Gold)

PODOL'NYY, Solomon Abramovich; FOSS, Nikolay Yevgen'yevich [deceased]; OPPENGEYM, D.G., red.; ROMANOVA, Z.A., tekhn.red.

[Assistance of the province hospital in organization and methods] Organizatsionno-metodicheskaia rabota oblastnoi bol'nitsy. Moskva, Gos.izd-vo med.lit-ry Medgiz, 1960. 81 p.

(MIRA 14:1)

(HOSPITALS--ADMINISTRATION)

FOSS, V., inzh. (g.Kramotur'insk)

Aerated flyash concrete. Izobr.i rats. no.2:13-14 F '61.
(MIRA 14:2)

(Lightweight concrete)

MONASTYRSKIY, M.D., inzh.. Prinimali uchastiye: FRANK, G.A., inzh.; FOSS, V.A., inzh.; KALUZHSKIY, M.Ye., inzh.; NAYDENOV, A.P., inzh.; POLUBNEVA, V.I., inzh., red.

[Large-panel house built of foamed cinder concrete hardened without using autoclaves; practices of the "Bazstroi" Sverdlovsk sovnakhoz] Krupno-panel'nyi dom iz neavtoklavnogo zolopenobetona; opyt tresta "Bazstroi" Sverdlovskogo sovnarkhoza. Moskva, 1959. 15 p. (MIRA 13:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. Byuro tekhnicheskoy informatsii. 2. Upravlyayushchiy trestom "Bazstroy" Sverdlovskogo sovnarkhoza (for Monastyrskiy). 3. Nachal'nik tsentral'noy laboratorii tresta "Bazstroy" (for Frank). 4. Nachal'nik otdela proizvodstvennykh predpriyatiy tresta "Bazstroy" (for Foss). 5. Nachal'nik proizvodstvennogo otdela tresta "Bazstroy" (for Kaluzhskiy). 6. Glavnyy tekhnolog tresta "Bazstroy" (for Naydenov).
(Sverdlovsk Province--Apartment houses) (Lightweight concrete)

FRANK, G.A., inzh.; FOSS, V.A., inzh.; LEVITSKIY, M.V., inzh.

Large cinder concrete blocks. Rats.i izobr.predl. v stroi. no.10:19-22 '59. (MIRA 12:11)

1. Proyektnaya kontora Bazstroyproyekt. (for Levitskiy). Po materialam tresta Bazstroy Sverdlovskogo sovnarkhoza. (Cinder blocks)

Foss, V. L.

USSR/Chemistry - Synthesis

Card 1/1 Pub. 22 - 22/48

Authors : Lutsenko, I. F., and Foss, V. L.

Title : Reaction of ketene acetals with mercury acetate. Derivation of alpha-mercurated carboxylic acid esters.

Periodical : Dok. AN SSSR 98/3, 407-410, Sep 21, 1954

Abstract : The reaction between ketene acetals and mercuric acetate was investigated for the purpose of developing a general method for the synthesis of alpha-mercurated carboxylic acid esters. The physico-chemical properties of products obtained from such a reaction are described. The effect of metal chlorides ($CdCl_2$, $AlCl_3$ and HF), on the polymerization of ketene acetals, is explained. The results obtained, with less reactive chloro-and bromoketene acetals, are listed. Nine references: 5-USA; 2-German and 2-USSR (1900-1953).

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician A. N. Nesmeyanov, June 3, 1954

AUTHORS: Lutsenko, I. F., Badenkova, L. P. and Foss, V. L. 79-12-18/43

TITLE: Reaction of α-Alkoxyakrylnitriles with Mercury Acetate (Vzaimodeystviye α- alkoksiakrilonitrilov s uksusnokisloy rtut'yu).
The Synthesis of Esters of Monomercury Acetate (Polucheniye efirov monomerkurirovannoy uksusnoy kisloty).

PERIODICAL: Zhurnal Obshchey Khimii 1957, Vol. 27, Nr 12, pp. 3261-3264 (USSR)

ABSTRACT: The acetales of ketene (CH_2=C=O) which show highly active double bond do not produce monomercury esters on the occasion of reaction with mercury acetate. It was interest to investigate whether such esters can be obtained by action of mercury acetate on α- alkoxyacrylustriles (CH_2=C(OR)CN). In these compounds to be regarded as acetales of ketene with which one alkoxygroup is substituted by the nitrile group the double bond is considerably weakened in comparison with the acetales of ketene and even with the simple vinylesters. While vinylbutylesters with mercury acetate reacts strongly, the reaction with α- butooxyakrylnitrile takes several hours. The connection of the mercury acetate to the α- alkoxyakrylnitriles is interesting also because it is a "competing orientation

Card 1/2

Reaction of -Alkoxyakrylnitriles with Mercury Acetate. The Synthesis of Esters of Monomercury Acetate. 79-12-18/43

of addition" in the aliphatic order which is very little investigated. On the basis of the knowledge on this orientation in the aromatic series it could have been expected that the direction of addition will be determined by the alkoxy-group and that a mercury atom will thus bind with the CH_2 - group of the α - alkoxyakrylnitrile. The organic compound of mercury occurring as intermediate product with three different substituents in one carbon atom continues its decay which leads to the ester of monomercuryacetate (see formula). Methyl-, ethyl-, propyl-, and butylesters of the monomercuryacetate were synthesizes in this way. These compounds are precipitated from the methylalcoholic solutions as crystals and show distinctive melting point.
There are 1 table, and two references, 1 of which is Slavic.

SUBMITTED: November 28, 1956

AVAILABLE: Library of Congress

Card 2/2

1. Esters - Synthesis 2. α-alkoxyakrylnitriles - Chemical reactions 3. Mercury acetate - Chemical reactions 4. Cyclic compounds - Chemical reactions

LUTSENKO, I.F.; FOSS, V.L.; IVANOVA, N.L.

Reaction of ketene with mercury salts. Dokl. AN SSSR 141 no.5: 1107-1108 D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom A.N. Nesmeyanovym.

(Ketene) (Mercury salts)

FOSS, V.L.; KUDINOVA, V.V.; POSTNIKOVA, G.B.; LUTSENKO, I.F.

Derivatives of β-ketophosphinic acids. Dokl. AN SSSR 146 no.5: 1106-1108 O '62. (MIRA 15:10)

(Phosphinic acid)

FOSS, V.L.; ZHADINA, M.A.; LUTSENKO, I.F.; NESMEYANOV, A.N.

Reaction of ketene with quasiocomplex compounds of mercury.
Zhur.ob.khim. 33 no.6:1927-1933 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Ketene) (Mercury compounds)

FOSS, V.L.; BESOLOVA, Ye.A.; LUTSENKO, I.F.

Reaction of esters of antimonous acid with ketene. Zhur. ob. khim. 35 no.4:759-760 Ap '65.

(MIRA 18:5)

ACC NR: AP7012427 SOURCE CODE: UR/0079/66/036/010/1863/1864

AUTHOR: Kudinova, V. V.; Foss, V. L.; Lutsenko, I. F.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: New methods of synthesizing functionally substituted organic arsenic derivatives

SOURCE: Zhurnal obshchey khimii, v. 36, no. 10, 1966, 1863-1864

TOPIC TAGS: acetic acid, organic arsenic compound

SUB CODE: 07

ABSTRACT: The authors developed a number of methods for the preparation of alpha-arsenated ketones, esters, and amides of acetic acid. The first representative of alpha-arsenated ketones -- phenyldi (butanone-2-yl-1(arsine) was prepared by boiling phenylarsenic sulfide with mercuribis-methyl ethyl ketone in xylene. The methyl ester of di(carboxymethyl)phenylarsine was prepared 1) by heating phenylarsenic sulfide with the methyl ester of mercuribis-acetic acid and 2) by heating phenyldichloroarsine with the methyl ester of triethylstannylacetic acid. Other esters of di(carboxymethyl)-phenylarsines were prepared analogously. The diethylamide of dipropylarsylacetic acid was

Card 1/2 UDC: 547.242

09327 1376

ACC NR: AP7012427

prepared by the exothermic reaction of ketone with diethylaminodipropylarsine. The organoarsenic compounds were prepared in 50-60% yields, and their structures were confirmed by infrared spectroscopy. Orig. art. has: 4 formulas and 1 table. [JPRS: 40,422]

2/2

FOSSEL, M.

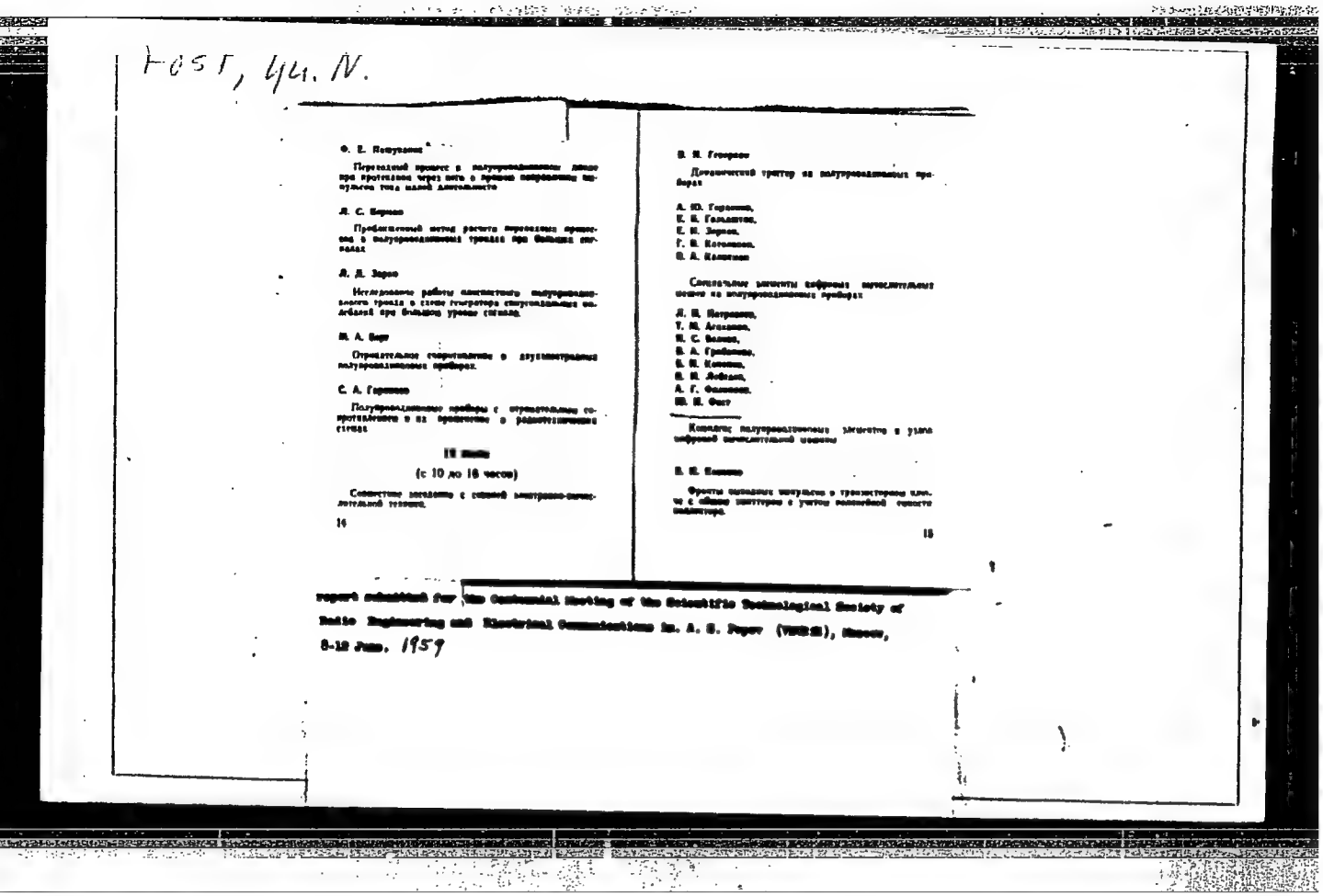
Phase contrast studies of spermatozoa. Mikroskopie 6 nos. 7-8:260-261 1951. (CIML 21:1)

1. Of the Institute of Forensic Medicine of Graz University.

MARCHENKO, Ye. Ya.; GONCHAROVA, Ye. I.; Prinimali uchastiye: CHASHKA, A. I.; FOST, A. L.

Role of halogens in the formation and subsequent change of monazite of pneumatolytic-hydrothermal genesis. Dokl. AN SSSSR 155 no. 2:349-352 Mr '64. (MIRA 17:5)

1. Institut mineral'nykh resursov, Simferopol'. Predstavleno akademikom V. S. Sobolevym.



Fost, Yu. N.

Ф. Е. Потупалов

Переходный процесс в полупроводниковых диодах при протекании через него в прямом направлении импульса тока малой длительности

Я. С. Верман

Графический метод расчета переходных процессов в полупроводниковых триодах при больших сигналах

Я. Д. Зарин

Исследование работы симметричного полупроводникового триода в схеме генератора ступенчатообразных импульсов при большом уровне сигнала

М. А. Бари

Ограничительное сопротивление в двухэлектродных полупроводниковых приборах

С. А. Гершман

Полупроводниковые приборы с ограничительным сопротивлением и их применение в радиотехнических схемах

11 июня

(с 10 до 16 часов)

Совместное заседание с секцией электронно-вычислительной техники.

16

В. М. Гончаров

Двухкаскадный триггер на полупроводниковых приборах

А. Ш. Гершенин,
Е. Б. Гольдштейн,
Е. Я. Зарин,
Г. В. Котомкин,
О. А. Каменская

Сравнительные параметры цифровых вычислительных схем на полупроводниковых приборах

Л. П. Петрович,
Т. М. Агеенкова,
Н. С. Волков,
В. А. Грибанова,
Б. Н. Кононов,
Б. Н. Лебедев,
А. Г. Филиппов,
Ш. Ш. Фост

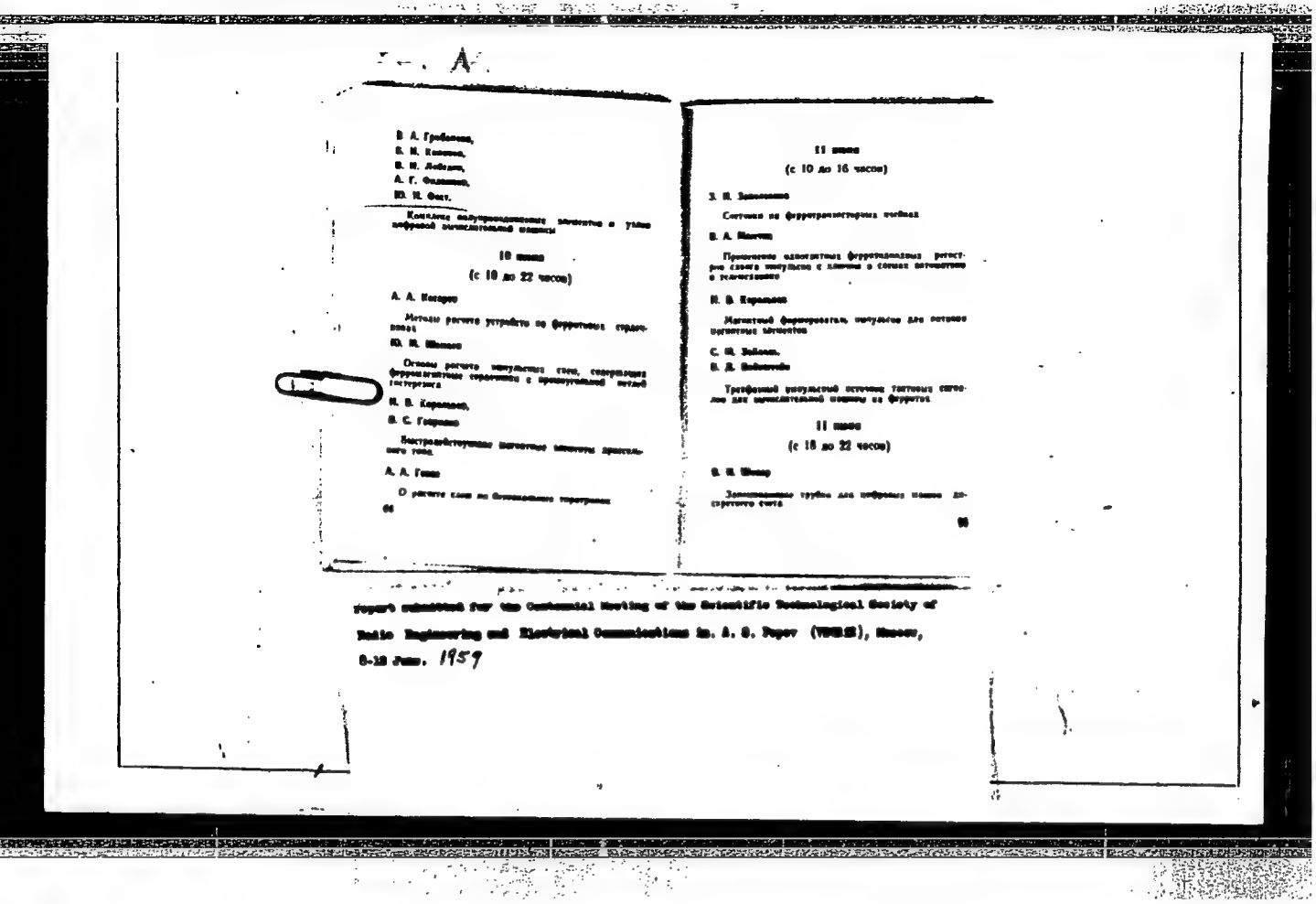
Комплекс полупроводниковых элементов и узлов цифровой вычислительной техники

В. Н. Кононов

Фронты основных импульсов в транзисторных ключах с общим эмиттером с учетом емкостной емкости коллектора.

18

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNIOIS), Moscow, 8-12 June, 1959



Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNIRE), Moscow, 8-13 June. 1959

Vul', V.L.

Some properties and applications of dielectric crystals with current determined by the space charge. Izv. vys. ucheb. zav.; radiotekh. 7 no.[illegible] 111-114. (MIRA 17:11)

L 08725-67 EWT(d)/EWP(1) IJP(c) BB/GG
ACC NR: AP6033216 SOURCE CODE: UR/0142/66/009/004/0492/0496

AUTHOR: Arkhangel'skiy, A. Ya.; Lebedev, V. I.; Post, Yu. N.

ORG: none

TITLE: Register with silicon transistors in a microregime

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 4, 1966, 492-496

TOPIC TAGS: computer memory, transistorized circuit, TRIGGER CIRCUIT

ABSTRACT: A low-power, solid-state dynamic register is described. The register (see Fig. 1.) uses P502 V transistors and D523 B diodes. MLT resistors R and R_1 are 30 and 100 kΩ, respectively. Each trigger uses about 1 mw of power; adjacent stages are coupled with diodes. The fan-out of the register is three (n = 3). A five-stage register was tested with n = 3 and 4. The lower limit of the clock oscillator pulse amplitude was raised (nominal amplitude is 8 v) for n = 4 at an operating temperature of 22C; it was further raised for a temperature of -60C. The operating temperature range of the register is ±60C.

Card 1/2 UDC: 621.374.325.4:621.382.3

L 08725-67

ACC NR: AP6033216

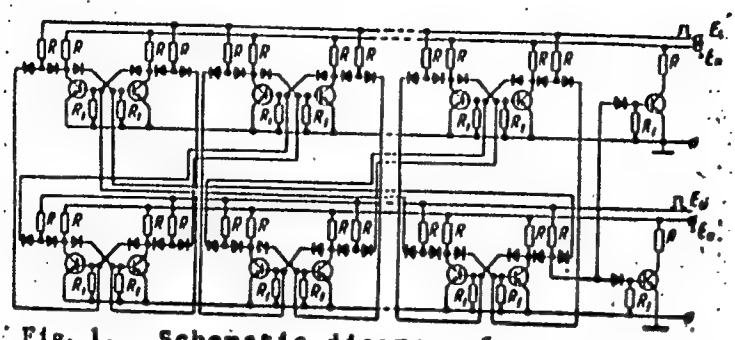


Fig. 1. Schematic diagram of an n-stage register

Resistor and supply voltage tolerances are ±20%. The total power consumption of the register is 10 mw. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 09/ SUBM DATE: 23Nov64/ ORIG REF: 001/ OTH REF: 004

Card 2/2 net

16.6.80

35889
S/044/62/000/002/087/092
C111/C333

AUTHOR: Foster, F. G.

TITLE: Queues with batch arrivals

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 76, abstract 2V431. ("Acta math. Acad. scient. hung.", 1961, 12, no. 1-2, 1-10)

TEXT: Into a single-channel system of mass service with exponentially distributed service time with the average μ^{-1} there enter in the moments τ_i exactly r demands each time, $\tau_{n+1} - \tau_n \geq 0$ are independent random variables

$$P\{\tau_{n+1} - \tau_n \leq x\} = F(x), \quad \varphi(s) = \int_0^\infty e^{-sx} dF(x),$$

$$\alpha = \int_0^\infty x dF(x) < \infty ,$$

$\lambda = \alpha^{-1}$, $\varrho = \frac{r\lambda}{\mu} < 1$. Let $\xi(t)$ be the number of demands being in the system in the moment t,

Card 1/3

Queues with batch arrivals

S/044/62/000/002/087/092
C111/C333

$p_j = \lim_{t\to\infty} P\{\xi(\tau_n - 0) = j\}$, $P(z) = \sum_{j=1}^{\infty} p_j z^j$

$K(z) = \varphi(\mu(1-z))$. It is proved

Theorem 1: $P(z) = \prod_{j=1}^{r} \frac{1-\gamma_j}{1-\gamma_j z}$, where γ_j are the roots of the equation $K(z) = z^r$ in the circle $|z| = 1$, where multiple roots are not excluded. As an example it is shown that in the case of a Poisson input flow the formula attains the form

$$P(z) = \frac{(1-r\varrho)}{1-z} \frac{(1-z)}{\{1+\varrho(1-z^r)\}},$$

for $P(z)$. If $\eta(t)$ is the waiting time of the first part in the group,

$W(x) = P\{\eta(\tau_n - 0) \leq x\}$, $\Omega(s) = \int_0^{\infty} e^{-sx} dW(x)$

Card 2/3

Queues with batch arrivals

then it is proved:

Theorem 2:

$$\Omega(s) = \prod_{j=1}^{r} \frac{1-\gamma_j}{1-\frac{\gamma_j \ell^{\mu}}{\ell^{\mu+s}}} .$$

Finally, it is referred to the connection with the queue in a single-channel system, where the input flow has a bounded aftereffect and the service times have an Erlang distribution.

[Abstracter's note: Complete translation.]

Card 3/3

FOSTIKOV, A.T.

Project drawn up for terracing the slopes according to the expeditious survey data. Rev geodezie 7 no.3:56-64 '63.

1. Societatea tehnico-stiintifica pentru agricultura si silvicultura din R.S.S. Moldoveneasca.

BOSKOVIC,Radojka; FOSTIKOV,Boris

Exacerbation in patients early treated with antibiotics.
Tuberkuloza,Beogr. 11 no.3:350-353 '59.

1. Gradska bolnica za grudobolne Bezanijska Kosa,Zemun, upravnik: prim. dr Lj. Ilic.
(TUBERCULOSIS PULMONARY ther.)

FOSTIKOV, Boris; DRAGANIC, Julijana; VRANJESEVIC, Gordana

Complications in the treatment of pulmonary tuberculosis with pyrizamide. Tuberkuloza 15 no.2:263-265 Ap-Je '63.

1. Gradska bolnica za grudobolne, Bezanijska Kosa - Upravnik: prim. dr Ljubisa Ilic.

(PYRIZAMIDE) (TUBERCULOSIS, PULMONARY)
(LIVER DISEASES)

PROFILEV, Boris; [illegible], Julijana; VRANJESEVIC, Gordana

Complications in the treatment of pulmonary tuberculosis with pyrazinamide. Srpski arh. celok. lek. 91 no.12:1157-1164 D '63.

1. Bolnica za grudobolne, Bezanijska Kosa - Zemun (Upravnik: prim. dr. Ljubisa Ilic).

Country	: Rumania	H-28
Category	:	
Abs. Jour.	:	-7741
Author	: Postiropel, A.; Rautu, R.	
Institut.	:	
Title	: Determination of Neutralizing Substances in Milk	
Orig Pub.	: Igiena, 1957, 6, No 3, 230-235	

Abstract : The possibility was investigated of utilizing the methods of Ilce and Pfeiffer (Ilce K., Pfeiffer, H., Zeitschrift für Untersuchung der Lebensmittel, 1930, 59, 437), and Petrov-Kaya-Yelenkova (Zhurnal, 1955, No 10, 4312), for detection of neutralization of milk with alkalies. It was found that in the instances when the first mentioned method yields uncertain results, the 2nd mentioned method can be successfully used to establish the fact of neutralization of the milk (not, however, for a quantitative determination). -- A. Marin.

Card:

-03 FOSTIROPOL C

RUMANIA / Chemical Technology, Chemical Products and Their Application, Part 1. - Water Treatment Sewage. H

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 61380.

Author : T. Ionescu, C. Fostiropol, M. Goruneanu, V. Cristoloveanu.
Inst : Polytechnical Institute Bucharest.
Title : Treatment of Water by Coagulation in Presence of Activated Silica.

Orig Pub: Bul. Inst. politehn. Bucuresti, 1956, 18, No 1 - 2, 59 - 64.

Abstract: Experimental results of water coagulation in the presence of activated silica (AS) are presented. $Al_2(SO_4)_3$, $Fe_2(SO_4)_3$ and $FeSO_4$ were used as coagulants. AS was prepared by adding 3%-ual H_2SO_4 drop by drop to a freshly prepared

Card 1/3

RUMANIA / Chemical Technology, Chemical Products and H
Their Application, Part 1. - Water Treatment
Sewage.

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 61380.

Abstract: aqueous Na_2SiO_3 solution at continuous stirring till alkalinity was partially or completely neutralized. The solution was aged till opalescence appeared and distilled water was added to it to the concentration of SiO_2 of 1% or less. Solutions with pH = 6 to 8 were used. Water of the hardness of 3.4 mg-equ. per liter and turbidity of 1000 to 1200° (artificially prepared and natural) was coagulated. It was found that coagulation with $Al_2(SO_4)_3$ without AS did not clear water completely even in 3 hours. In the case that AS was present simultaneously, the water turbidity dropped to 1° in 1 to 2 hours. The necessary consumption of

Card 2/3

BURLAKOV, Vasiliy Nikolayevich, inzh.; FOSTIY, Yevgeniy Aleksandrovich, inzh.; REZNIKOV, V.T., inzh., retsenzent; SEMENENKO, M.D., inzh. red. izd-va; BEREZOVYY, V.N., tekhn. red.

[Mine timberer]Krepil'shchik gornykh vyrabotok. Kiev, Gos.izd-vo tekhn. lit-ry USSR, 1962. 151 p. (MIRA 16:1)
(Mine timbering)

FOST YUCHENKO, V.V.

Primeneniye Otboynykh Molotkov Na Kashpirskom Rudnike, Goryuchiye Slantsy, 1932, No. 10, 29;

SO: Goryuchiye Slantsy #1934-35, TN .871
G .74

ROTTER, Leo, FOSUM, Jiri

Properties of molding binding mixtures with water glass and bentonite. Slevarenstvi 12 no.11:444-448 N '64.

1. Smeralovy zavody, Brno and Zavody V.I.Lenina, Ceske Budejovice.

ROTTER, Leo; POSUM, Jiri

Surface drying of molds made from binding molding mixture with water glass and bentonite. Slevarenstvi 13 no.2:57-62 F '65.

1. Smeralovy zavody National Enterprise, Brno and Zavody V.I. Lenina National Enterprise, Ceske Budejovice.

RUMANIA/Farm Animals - Honey-Bees. Q-8

Abs Jour : Ref Zhur - Biol., No 1, 1958, 2675

Author : Iancu Fota
Inst : -
Title : The Flowers of the Edible Chestnut as an Important Source of Honey.

Orig Pub : Apicultura, 1957, No 2, 9-10

Abstract : In the Tisman mountains (Rumania) the chestnut trees begin to bloom in mid-June. The blossoms last for about 15 days. In 1953, 80 colonies of bees were brought to the forest and located in two places at a distance of 800 meters from each other. These colonies gathered 600 kilograms of honey which proved to be a satisfactory winter reserve for the bees.

Card 1/1

FOTACHE, Grigore, ing.

Let's manage the electric power with care. Constr Buc 15 no.728:2 21 D '63.

1. Seful serviciului energetic al Fabricii de ciment Bicaz.

L 47247-66 EWP(t)/ETI IJP(c) JD

ACC NR: AP6034313 SOURCE CODE: RU/0017/66/000/002/0077/0079

AUTHOR: Fotache, I. (Engineer); Radulescu, I. (Engineer) 23 B

ORG: "Progresul" Works, Braila (Uzinele "Progresul")

TITLE: Use of molybdenite as a substitute for ferro-molybdenum 27

SOURCE: Metalurgia, no. 2, 1966, 77-79

TOPIC TAGS: metallurgic furnace, molybdenum steel

ABSTRACT: The authors report on the successful use of molybdenite in the smelting of molybdenum steels. Tests at the "Progresul" Works gave excellent results in electric furnaces, and under proper conditions and to a more limited extent also in Martin furnaces. Orig. art. has: 1 figure, 3 formulas and 1 table. [Based on authors' Eng. abst.] [JPRS: 36,867]

SUB CODE: 11, 13 / SUBM DATE: none / ORIG REF: 001

Card 1/1 gd UDC: 669.15'28-194

BREZINA, B.; FOTCENKOV, A.A.

The influence of a surface layer on the 180° switching of $BaTiO_3$ single crystals. Chekhosl fiz zhurnal 14 no.1:21-25 '64.

1. Institute of Physics, Czechoslovak Academy of Sciences, Praha 8, Lumumbova 8 (for Brezina).
2. Institute of Physics, Academy of Sciences U.S.S.R., Krasnoyarsk (for Fotcenkov).

FOTChENKO, G. T., C nd Agri Sci — (diss) "Certain data on the composition and food value of corn and corn silage in the Omsk Oblast," Omsk, 1960, 18 pp, 200 cop. (Omsk Agricultural Institute im S. M. Kirov) (KL, 44-60, 132)

ACCESSION NR: AP4035377 Z/0055/64/014/001/0021/0025

AUTHOR: Brezina, B.; Fotcenkov, A. A.

TITLE: The influence of a surface layer upon the 180 degree switching of BaTiO sub 3 single crystals

SOURCE: Chekhoslovatskiy fizicheskiy zhurnal, v. 14, no. 1, 1964, 21-25, 76a-b

TOPIC TAGS: switching, clamping, d-c restoration, switching diode, crystallography, BaTiO sub 3 crystal, anti-parallel domain, solid state physics, BaTiO sub 3-KF system, LiCl electrode

ABSTRACT: The effect of a $BaTiO_3$ single crystal surface layer on 180° switching was found. $BaTiO_3$ single crystals without admixtures, which were grown from a $BaTiO_3$-KF system, were used. Crystals with a perfect surface and without internal stress were c-domained by a d-c electric field for a maximum of 1 sec. The crystals were examined by the microscopic method described by R. C. Millers and A. Savage (Journal of Applied Physics, 31 (1960), 662). A continually increasing voltage of a constant rate of 10 volts/min was applied to liquid LiCl electrodes in the direction of the crystal's c-axis. After the application

Card 1/3

ACCESSION NR: AP4035377

of the electric field, the nucleating and moving anti-parallel domain walls are visible when crossed Nicol prisms are used. The surface layer was successively etched from one or both sides simultaneously in concentrated H_3PO_4 at 140-150 C. The surface layer on $BaTiO_3$ crystals causes the formation of a large number of anti-parallel domains during switching by a d-c electric field. These domains extend sideways only insignificantly. Conversely, the switching in crystals without a surface layer is characterized by the formation of a small number of anti-parallel domains in which the sideways motion of the wall predominate. A long-term polarization (about 10 hours) with a d-c field of 10 to 15 kilovolts/cm has an effect which is similar to etching a surface layer on both sides. The maximum displacement rate of the 180° wall in etched crystals was in the direction of the crystallographic a axis. The minimum was in the direction forming a 45° angle with the a axis. Hence, primarily square domains with inwardly bending sides are produced from the original point domains. Authors conclude that they cannot at present make any further conclusive statements concerning the fact that the number of the nuclei of anti-parallel domains can be influenced by prolonged polarization of $BaTiO_3$ single

Card 2/3

ACCESSION NR: AP4035377

crystals by a d-c field. The relatively long periods of d-c field application which are necessary for the change described indicate the presence of ion exchange processes in the electric field which obviously effect the surface layer. "The authors thank J. Fousek C. Sc. and K. Patek C. Sc. for valuable discussions and H. T. Arend C. Sc. and J. Jary for preparing the crystals." Orig. art. has: no graphics.

ASSOCIATION: Institute of Physics, Czech. Academy of Sciences, Prague; Institute of Physics, Academy of Sciences, SSSR, Krasnoyarsk

SUBMITTED: 02Apr63 DATE ACQ: 26May64 ENCL: 00

SUB CODE: SS, EC NO REF SOV: 000 OTHER: 011

Card 3/3

AUTHOR: Fotchenkov, A.A. 70-5-14/31

TITLE: Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals (Ustanovka dlya izmereniya ves'ma malykh smeshcheniy koleblyushchikhsya kristallov)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 653 - 657 (USSR)

ABSTRACT: The crystal plate specimen which is to be investigated is mounted behind the stationary mirror of a Michelson interferometer and is excited at an audio-frequency in a thickness mode by an alternating voltage applied across evaporated silver electrodes. The fringe system is projected onto a slit and one line is allowed to fall on a photomultiplier cathode. The photomultiplier current is amplified and the component at the frequency of the exciting oscillator is measured. The displacement of the fringe system is proportional to the change in thickness of the crystal specimen. The minimum displacement measurable is about 0.05 Å. The illumination employed is a cinema projection lamp of 300 W and the wavelength band between 5 100 and 5 290 Å is passed into the interferometer by an interference filter. The tuned amplifier has a pass band of 10 Kc/s (sic ! 10 c/s is probably meant) in the range 20 - 26 000 c/s. Electronically stabiliser power supplies are used. When conducting an experiment the interferometer is set to zero path

Card 1/3

Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals.

difference and the max. and min. values of I (the intensity of illumination falling on the cell) when the compensating plate is slightly moved are read. If dI represents the alternating component of light intensity, the displacement of the crystal is given by:

$$(dI)_{max} \lambda/\pi(I_{max} - I_{min}) .$$

As a test, an X-cut plate of quartz, 2 mm thick and 18 mm in diameter was used. The modulus d_{11} was measured at 3 000 c/s using a voltage of 100 which produced a displacement of 3.1 Å. Acoustic and electrical interference limited the sensitivity to 0.5 Å but at night 0.05 Å could be attained. d_{11} was found to be $6.57 \pm 0.07 \times 10^{-8}$ c.g.s.u. The method is recommended for measuring piezoelectric and electrostrictive effects, their temperature and frequency dependences and studying polarisation and phase transition phenomena in ferroelectrics. Acknowledgments to I.S. Zheludev and to colleagues of the Gor'kiy Scientific Research Radio-Physics Institute (Gor'kovskiy nauchno-issledovatel'skiy radio-fizicheskiy institut)

70-5-14/31

Apparatus for Measuring Extremely Small Displacements of Oscillating Crystals.

There are 2 figures and 5 Slavic references.

ASSOCIATION: Institute of Crystallography Ac.Sc. USSR. (Institut Kristallografii AN SSSR)

SUBMITTED: May 24, 1957.

AVAILABLE: Library of Congress.

Card 3/3

AUTHORS: Zheludev, I.S. and Fotchenkov, A.A. 70-3-3-9/36

TITLE: The Electrostriction of Linear Dielectrics (Elektrostriktsiya lineynykh dielektrikov)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 3, pp 308 - 314 (USSR).

ABSTRACT: Four possible equations for the electrostriction of linear dielectrics are derived and lead to the examination of the new coefficients R_{ijmn}, G_{ijmn} written C erroneously in one place) and H_{ijmn}. By the method of linearisation of electrostriction the electrostriction coefficients R_{ijmn} were measured for eskapon (GASH), NaCl and Z-cut quartz. In a non-piezo-electric dielectric the equations used are

$$r_{ij} = Q_{ijmn}d_m d_n \quad /t_{ij}=0 , \quad t_{ij} = -H_{ijmn}E_m E_n \quad /r_{ij}=0 ,$$

$$r_{ij} = -R_{ijmn}E_m E_n \quad /t_{ij}=0 \quad \text{and} \quad t_{ij} = G_{ijmn}d_m d_n \quad /r_{ij}=0 .$$

d_m is the induced electric induction, E_m is the electric

Card 1/3

field, r_{ij} the mechanical deformation and t_{ij} the mechanical stress. Q, H, R and G can be expressed as derivatives, as: $Q_{ijmn} = -1/2 \frac{\partial^2 E_m}{\partial t_{ij} \partial d_n}$, etc.

Relations can also be found between the various electrostriction coefficients in terms of, for example, the dielectric susceptibility measured at constant stress, compliance for constant E and D, etc. The electrostriction tensor has 21 components and Laval's theory is not applied here. The notation is condensed by denoting E_1E_1 by E_1 etc. E_2E_3 by E_4, E_3E_1 by E_5, E_1E_2 by E_6. This tensor is quite analogous to the compliance tensor s_{ij}. The apparatus used for measurements has been described (Kristallografiya, 1957, Vol 2, Nr 5, pp 653 - 657) and works on the principle of modulation interferometry permitting the measurement of displacements to 0.05A.

Card2/3 For Z-cut quartz R_{33} was found to be $(0.1 \pm 0.05) \times 10^{-14}$ cgsu.

The Electrostriction of Linear Dielectrics 70-3-3-9/36

for GASH $R_{11}=R_{22}=R_{33} = (0.8 \pm 0.05) \times 10^{-14}$ cgsu
$R_{12}=R_{13}=R_{23} = -(0.4 \pm 0.05) \times 10^{-14}$ cgsu
$R_{44}=R_{11}=R_{12} = (1.2 \pm 0.05) \times 10^{-14}$ cgsu

For NaCl $R_{11}=R_{22}=R_{33} = (0.9 \pm 0.05) \times 10^{-14}$ cgsu
$R_{12}=R_{13}=R_{23} = -(0.45 \pm 0.05) \times 10^{-14}$ cgsu
$R_{44} = (0.3 \pm 0.05) \times 10^{-14}$ cgsu

Acknowledgments to A.V.Shubnikov.
There are 6 figures and 13 references, 4 of which are Soviet and 7 English, 2 French.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography, Ac.Sc.USSR)

SUBMITTED: March 14, 1958

Card 3/3

KOPYLENKO, A. A., Cand Phys-Math Sci -- (diss) "Investigation of piezo-effect and electro-striction of crystals by modulation interferometry," Moscow, 1960, 20 pp, 220 cop (Institute of Crystallography, AS USSR) (KL, 43-60, 117)

85092

9.2180

S/070/60/005/003/017/024/XX
E132/E460

AUTHOR: Fotchenkov, A.A.

TITLE: The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.415-419 + 2 plates

TEXT: The tensor of the piezoelectric moduli of a crystal of the class 2 takes the following form:

$$\begin{vmatrix} d_{11} & d_{12} & d_{13} & d_{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & d_{25} & d_{26} \\ 0 & 0 & 0 & 0 & d_{35} & d_{36} \end{vmatrix}$$

Rochelle salt in its ferroelectric region belongs to this class but outside it has the class 22 which is orthorhombic and for which the moduli above are zero except for d_{14}, d_{25} and d_{36}. The additional moduli which appear on the small displacements giving rise to the

Card 1/4

S/070/60/005/003/017/024/XX
E132/E460

The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

monoclinic structure are, however, some one or two orders of magnitude smaller than the others. Because of the high coupling between modes it is very difficult to measure these extra moduli. Measurements of these monoclinic moduli have been made at a temperature near the upper Curie point of 24°C and the domain pattern of the crystal has been simultaneously photographed. The measurements were made with an apparatus described earlier (Krist. 2, 653, 1957), in which a silvered face of the specimen forms one plate of a Michaelson interferometer. Periodic displacements of the crystal down to 0.05 Å can be measured. A special crystal holder taking specimens cut appropriately perpendicular to the X, Y and Z axes with dimensions about 5 x 10 x 20 mm was used. An alternating voltage at 1 Kc/s giving a field of 8.5 v/cm was applied across the silver electrodes and a constant polarizing field of up to 500 v/cm was superimposed. The piezoelectric moduli d_{11}, d_{12} and d_{13} were determined from the inverse piezoelectric effect by measuring the strain produced along

S/070/60/005/003/017/024/XX
E132/E460

The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

the X, Y and Z axes when the alternating voltage was applied to the specimen. The variation of d_{11} with the polarizing field is shown. d_{11} takes the value of - 0.28 x 10^{-6} c.g.s. units for zero polarizing field. This shows that the initial state of the crystal was unipolar, that is that the numbers of domains polarized parallel and antiparallel to the imposed polarization were not equal. The variation of d_{11} during a complete cycle of polarization reversal 0 to +500 to -500 volts/cm is plotted. The temperature variation of d_{11} through the transition point at +24°C was followed at several polarizations. The variations of d_{12} and d_{13} with temperature and polarization were found to be very similar, the values of these moduli being 3.8 x 10^{-7} and - 3.78 x 10^{-7} c.g.s.u. respectively for saturation fields and at 9.2°C. The values found agree with the prelinary estimates by Wood and Mason. Acknowledgments to I.S.Zheludev for directing the work and to M.P.Zaytseva and E.S.Tursunova for their assistance.

Card 3/4

85092
S/070/60/005/003/017/024/XX
E132/E460

The Dependence of the Monoclinic Piezoelectric Moduli of Rochelle Salt on the Degree of Unipolarity of the Crystal at Various Temperatures

There are 5 figures and 4 Soviet references.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
(Institute of Physics, Siberian Section AS USSR)

SUBMITTED: February 8, 1960

Card 4/4

25893
S/070/61/006/004/005/007
E032/E314

9,2180 (1331, 1144, 1063)

AUTHORS: Fotchenkov, A.A., Zheludev, I.S. and Zaytseva, M.P.

TITLE: Electrostriction of Single Crystals of Rochelle Salt

PERIODICAL: Kristallografiya, 1961, Vol. 6, No. 4, pp. 576 - 581

TEXT: In distinction to linear dielectrics (Ref. 1 - Fotchenkov and Zheludev - Kristallografiya, 1958, Vol. 3, No. 3, pp. 308-314) ferroelectrics exhibit a much greater electrostriction effect. Up to now, the electrostriction coefficients of ferroelectrics have been largely measured by indirect methods. Allsopp and Gibbs (Ref. 11 - Philos. Mag. 1959, Vol. 4, No. 39, pp. 359-370), G. Schmidt (Ref. 10 - Z. Physik, 1956, 145, pp. 534-542; Ref. 12 - Naturwissenschaften, 1958, Vol. 45, No. 1, pp. 8-9) are said to have been the first to determine the electrostriction coefficients of barium titanate by direct measurement of the deformation which appears under the action of an electric field. In previous work, the electrostriction coefficients were determined

Card 1/9

Electrostriction of ....

from the relation between the deformation of the specimen and the square of the spontaneous polarisation. No account was taken of the effects due to the reorientation of the domains in the electric fields. The present authors define the electrostrictional deformation of ferroelectrics as the deformation which is proportional to the square of the electric field independently of the mechanism giving rise to the deformation. The apparatus described by the first of the present authors in Ref. 13 (Kristallografiya, 1957, Vol. 2, No. 5, pp. 653 - 657) has been used to carry out a detailed study of the electrostriction properties of Rochelle salt. Particular attention was paid to electrostrictional deformation due to reorientation in the domain structure. In the present work, the degree of polarization of Rochelle-salt specimens and their phase-transition temperature were controlled with the aid of the hysteresis loop obtained in the "usual way". The Rochelle-salt specimens (5 x 10 x 20 mm along the X, Y and Z axis) were placed in a thermostated crystal holder described by the first of the present authors (Ref. 14 - Kristallografiya, 1960, Vol. 5, No. 3, pp. 415 - 419).

Electrostriction of ....

The electrodes were in the form of silver foil and the deformation of the specimen was measured at twice the frequency of the applied sinusoidal voltage. Fig. 2 shows the dependence of the electrostriction of a Rochelle-salt specimen (X section) on the magnitude of the applied electric field (V/cm) at 600 kc/s and $T = 22\ ^{o}C$. The thickness of the specimen was 2 mm. Curve 1 shows the electrostrictional deformation r'_{11} and Curve 2 the electrostriction coefficient r_{11}. Fig. 3 shows the dependence of the electrostriction coefficient R_{11} for Rochelle salt as a function of a (constant) polarizing field (V/cm) with $E_{\sim} = 140$ V/cm and $T = 12\ ^{o}C$. Consideration of this figure shows that even small constant fields remove from the polarization reversal process a large fraction of the domains. A comparison is then made between the electrostriction coefficient R_{11} for Rochelle salt and the coefficient Q_{11} as reported by Mason (Ref. 2 - Piezo-electric Crystals and Their Application in Ultra-acoustics. Izd. IL, Moscow, 1952).

Card 3/9

Electrostriction of ....

The two coefficients are related by:

$$R_{11} = (\varepsilon_{11}^{t}/4\pi T)^2 Q_{11}$$

where ε_{11}^{t} is the dielectric constant. It was found that with $E_{\sim}$ = 380 V/cm, ε_{11}^{t} = 160 . For the same field $R_{11} \simeq 0.07 \times 10^{-6}$ CGSE and hence $Q_{11} \simeq 430 \times 10^{-2}$. This is greater by a factor of 5 than the value reported by Wood and Mason. It is stated that the discrepancy may be due to some unknown errors in the results of Wood and Mason, who measured the spontaneous polarisation from the hysteresis loops while the spontaneous deformation was measured in the polydomain state. Fig. 4 shows the temperature dependence (heating) of the electrostrictional deformation of Rochelle salt (X section) for different values of the alternating field (Curve 1 - $E_{\sim}$ = 110 V/cm; Curve 2 - $E_{\sim}$ = 90 V/cm; Curve 3 - $E_{\sim}$ = 70 V/cm). The traces on the right were obtained

Electrostriction of ....

with $E_{\sim}$ = 110 V/cm; temperatures are indicated below the loops. Finally, Fig. 5 shows the temperature dependence of R_{11}, calculated from the data shown in Fig. 4 (Curves 1, 2 and 3 correspond to $E_{\sim}$ = 110, 90 and 70 V/cm, respectively). The general conclusion is that all the relationships obtained can be explained on the basis of the behaviour of the domain structure in an electric field. A schematic representation of the deformation of a ferroelectric in an alternating electric field is shown in Fig. 1, in which Curve 1 shows the applied field and Curve 2 the deformation as a function of time. The diagrams below the graphs illustrate the mechanism of the deformation of the crystal and the domain-reorientation process. Acknowledgments to I.M. Sil'vestrova and L.A. Skopina for carrying out the experiments.
There are 5 figures and 15 references: 8 Soviet and 7 non-Soviet. The four latest English-language references quoted are: Ref. 3 - W.P. Mason - Phys. Rev., 74, 1131-1147, 1948; Ref. 5 - M.E. Caspari, W.J. Merz - Phys. Rev., 80, 1082-1089, 1950; Ref. 7 - W.H. Bond, W.P. Mason and

25893
S/070/61/006/004/005/007
E032/E314

Electrostriction of ....

H.J. McSkimin - Phys. Rev., 82, 442, 1951:
Ref. 11 - A.H. Allsopp, D.F. Gibbs - Philos. Mag., 4, 39, 359-370, 1959.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR (Institute of Physics of the Siberian Branch of the AS USSR)
Institut kristallografii AN SSSR (Institute of Crystallography of the AS USSR)

SUBMITTED: January 9, 1960

Card 6/9

43507

S/070/62/007/006/014/020
E132/E435

AUTHORS: Fotchenkov, A.A., Zaytseva, M.P.

TITLE: The converse piezoelectric effect in triglycine sulphate (TGS)

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 934-937

TEXT: In crystals of Y-cut TGS the dependence of the modulus d_{22} on the magnitude of the alternating field, the temperature (for various polarizations) and the magnitude of the polarizing field used in the process of repolarization was measured. The observations are due to the domain structure of TGS. It was found that almost all specimens of Y-cut TGS were unipolar. At 22°C, d_{22} was found to lie between 10 and 60 x 10^{-8} cgsu but the majority of specimens were between 20 and 26 x 10^{-8} cgsu: d_{23} was found to be 46 x 10^{-8} cgsu for an exciting a.c. field of 10 V/cm. The decrease in d_{22} found with increasing amplitude of applied a.c. field is due to the action of the field in changing the sign of some of the domains in the preferred direction which determine the piezoelectric effect. A graph is given of the temperature dependence of the d_{22} which shows a peak of about

Card 1/2

300 to 600 x 10^{-8} cgsu with a width of about 5°C at 44°C. The height of the peak depends on the polarizing field. The dependence of d_{22} on polarizing field (dc) is of the form of a hysteresis loop. Saturation does not occur until fields of above 1200 V/cm are applied. There are 3 figures.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
(Institute of Physics, Siberian Section AS USSR)

SUBMITTED: February 28, 1962

FOTCHENKOV, A.A.; ZAYTSEVA, M.P. CHEREPTSOVA, L.I.

Electrostriction of triglycine sulfate. Kristalografiia 8 no.5: 724-728 S-O '63. (MIRA 16:10)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR.

L 52029-65 EWT(l)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t) Pc-4/Pr-4/Pt-7/
P1-4 IJP(c) GG/RM

ACCESSION NR: AP5016126 UR/0048/65/029/006/0948/0950

AUTHOR: Zaytseva, M.P.; Zheludev, I.S.; Zherebtsova, L.I.; Fotchenkov, A.A.

TITLE: On the strength of the electric field capable of inducing a polarization equal to the spontaneous value /Report, 4th All-Union Conference on Ferroelectricity, Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya. Ser.fizicheskaya,v.29,no.6,1965, 948-950

TOPIC TAGS: ferroelectricity, pyroelectric effect, piezoelectric effect, electric field

ABSTRACT: The electric field E_s capable of inducing a polarization equal to the spontaneous value was determined for Y-cut ferroelectric triglycine sulfate crystals and for the linear pyroelectric L-rhamnose. The piezoelectric modulus in the direction of the spontaneous polarization was measured as a function of an applied electric field and the value of the bias field (determined by extrapolation) for which the

Card 1/3

ACCESSION NR: AP5016126

piezoelectric modulus vanishes was taken as E_s. For l-rhamnose the value $(1.9 \pm 0.1) \times 10^5$ V/cm was obtained for E_s. For triglycine sulfate the measurements were made at several temperatures. From room temperature to about 37°C, E_s was constant and equal to $(3.25 \pm 0.15) \times 10^5$ V/cm. Above this temperature E_s decreased rapidly with increasing temperature but was still approximately 10^5 V/cm at the Curie point (47.5°C) and was appreciable even at 60°C. The appearance of nonvanishing values of E_s above the normal Curie point is ascribed to the shift of the Curie point toward higher temperatures under the influence of the bias field, and to possible inhomogeneities of the crystal. The ferroelectric crystals (triglycine sulfate) were more strongly polarized and more highly deformed in the electric field than were the linear dielectric crystals (l-rhamnose). It is suggested that this may be typical for ferroelectric and linear dielectric crystals in general. "The authors are grateful to K.S.Aleksandrov for much valuable advice during the conduct of the experiment and for a discussion of the results." Orig.art.has: 3 figures.

L 57027-65

ACCESSION NR: AP5016126

2

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics, Siberian Section of the Academy of Sciences of the SSSR); Institut kristallografii Akademii nauk SSSR (Institute of Crystallography, Academy of Sciences of the SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, EM

NR REF SOV: 007 OTHER: 001

Card 3/3

L 57569-65 EWT(1)/T/EEC(b)-2 Pl-4 IJP(c) GG

ACCESSION NR: AP5016132 UR/0048/65/029/006/0973/0977

AUTHOR: Anistratov, A.T.; Fotchenkov, A.A.; Aleksandrov, K.S.

TITLE: Measurement of the linear electro-optical effect in crystals by a dynamic procedure /Report, 4th All-Union Conference on Ferroelectricity held in Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR. Izvestiya.Ser.fizicheskaya,v.29,no.6,1965, 973-977

TOPIC TAGS: ferroelectric crystal, Rochelle salt, double refraction, phase transition

ABSTRACT: The authors describe a method for measuring the electro-optical constants of a crystal with the aid of an apparatus which they have described elsewhere (Pribory i tekhnika eksperimenta No.3, 193,1965). An alternating electric field is applied to the crystal and the consequent modulation of a light beam traversing the crystal between crossed Nicols is observed. The theory of this method is developed and it is shown that when the Nicols are crossed (90°) the

Card 1/3